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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,096	03/30/2004	Kiu-hae Jung	1793.1212	3087
49455	7590	12/07/2006	EXAMINER	
STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			LAMB, CHRISTOPHER RAY	
			ART UNIT	PAPER NUMBER
			2627	

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/812,096

Applicant(s)

JUNG ET AL.

Examiner

Christopher R. Lamb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/30/04</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities: in paragraphs 24 and 25, figures 1B and 2B are described as showing sync detection results at the innermost circumference. From the labels on the figures themselves, and the rest of the disclosure in those paragraphs, it appears that figures 1B and 2B show sync detection results at the outermost circumference.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claimed subject matter which is not enabled is the innermost and outermost radii of the disc-type recording medium.

The disclosure makes it clear the disc-type recording media are optical discs (for example, paragraph 3). There are several disc sizes disclosed. The first has an innermost radius of 6mm and an outermost radius of 22.5mm (as in paragraph 23). The second has an innermost radius of 6mm and an outermost radius of 14mm (as in paragraph 39).

These radii are significantly smaller than those of the prior art. Typical optical discs (e.g., CDs or DVDs) are much larger in size. A mini-disc has an innermost radius of 16mm, so the disclosed disc is significantly smaller than it as well.

Because of the significant difference between the disc size disclosed by the Applicant, and the disc size known in the prior art, it would require undue experimentation for one of ordinary skill to make and/or use the invention.

In making this rejection, the Examiner has weighed, among others, the following factors:

(A) The nature of the invention: The entire purpose of the invention appears to be directed toward sync codes for discs of the disclosed size. See, for example, paragraph 3: "as optical disc-type recording media are developed so as to improve their recording densities and minimize their sizes, their diameters become smaller. A reduction in the diameter of a disc increases the ratio of the radius..."

(B) The state of the prior art: None of the prior art of record discloses optical discs of this size (nor is the Examiner aware of any).

(C) The amount of direction provided by the inventor: the inventor provides no direction whatsoever except to state the radii.

(H) The quantity of experimentation needed to make and or use the invention based on the content of the disclosure: the amount of experimentation necessary is overwhelming, as one of ordinary skill would need to design and build an entirely new type of optical disc as well as an apparatus to read and record from it.

These radii are specifically claimed in, for example, claim 6, but all the claims rely upon dividing the outermost radius by the innermost radius, and thus none of the claims are enabled.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim discloses that the code either has a first value of 001 000 100 000 000 100 010 or a second value of 001 000 100 000 000 100 010. These two values are identical. Since the claim discloses separate outcomes for each of the "two" values, something is clearly amiss in the claim.

7. Claims 36-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 36:

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This claim is directed to "a method of detecting a sync code," but does not recite any steps for detecting the sync code. The only step recited in the claim is one of "generating the sync code."

Regarding claim 37:

It is dependent on claim 36, and does not add any positively recited steps to the method.

Regarding claim 38:

This claim is directed to "an apparatus for detecting a sync code." It is incomplete because it does not recite any elements for detecting the sync code. All the elements of the apparatus recited in the claim are directed toward generating the code, not detecting it.

Regarding claim 39:

It is dependent on claim 38, and does not add any detection elements to the claim.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 30-34 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are directed to "a computer-readable recording medium." In the specification, paragraph 63, a computer-readable recording medium is defined as

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including "a carrier wave used to transmit data through the Internet." This definition renders the claimed matter non-statutory.

See the "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility," especially pages 55-57.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-3, 5, 9-11, 13-16, 19-21, 24-27, and 29-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Kahlman et al. (US 6,496,541: disclosed in IDS).

Regarding claim 1:

Kahlman discloses:

A method of inserting a sync code into data recorded on a disc-type recording medium (column 1, lines 25-30), the method comprising inserting the sync code into an input data stream (column 6, lines 5-35),

wherein the sync code includes one pattern breaking the maximum run and other patterns aligned before and after the one pattern (visible in Table 3; column 14, lines 20-35), the length of the other patterns being the same as or larger than a value obtained by dividing the outermost circumference radius of the disc-type recording medium by the innermost circumference radius (in column 1, lines 45-55, the invention is disclosed as usable with a compact disc. The ratio of the outermost to innermost radii

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of a compact disc is approximately 2.3 to 1, so the 3T leading pattern disclosed by Kahlman meets this requirement).

Regarding claim 2:

In Kahlman the run length of the one pattern is longer by 1T than a maximum run length specified in a predetermined modulation-coding rule (column 11, lines 35-45).

Regarding claim 3:

The method of Kahlman comprises repeating the one pattern of the sync code at least twice (the 24 bit code of Table 3).

Regarding claim 5:

In the method of Kahlman the other patterns are 3T long and have a plurality of different sync signal patterns (column 11, lines 35-45; Table 3).

Regarding claim 9:

Kahlman discloses:

A method of modulating m-bit data into n-bit data to record the m-bit data on a disc-type recording medium, the method comprising:

modulating an input data stream in accordance with a predetermined modulation rule (column 6, lines 5-25);

determining a sync code to be inserted per predetermined unit of the modulated data stream (column 6, lines 25-35);

inserting the determined sync code into the modulated data stream (column 6, lines 25-35); and

converting the data stream containing the sync code into nonreturn-to-zero-inverted (NRZI) data (column 16, lines 35-50),

wherein the sync code is determined using a sync code table that stores sync codes containing one pattern breaking the maximum run and other patterns aligned before and after the one pattern (for example, table 3),

the lengths of the other patterns being the same as or larger than a value obtained by dividing the outermost circumference recording radius of the disc-type recording medium by the innermost circumference recording radius (as discussed in the rejection of claim 1).

Regarding claims 10-11 and 13:

All elements positively recited have already been identified with respect to earlier claims. No further elaboration is necessary.

Regarding claim 14:

In Kahlman, when modulating a 4-bit or a 8-bit code, the inserting inserts a sync code whose length is n-times longer than a length of the modulated code (in Kahlman table 3, it can be seen that when a 4-bit code is modulated it becomes 6-bit data. The sync code is 24 bits, so it is more than 6 times longer than the length of the modulated code).

Regarding claim 15:

In Kahlman, upon inserting the sync code into data modulated being in accordance with a modulation rule, the sync code is determined to meet both the run length rule for RLL coding and a Repeated Minimum Transition Ratio (RMTR) limiting

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condition to limit a repetitive appearance of a shortest T (this limiting condition is discussed in, for example, columns 9-10).

Regarding claim 16:

In Kahlman the sync code has a first value and a termination table is used or the sync code has a second value and the termination table is not used (apparent from table 2).

Regarding claims 19-21, 24-27, and 29:

These claims are apparatus claims corresponding to earlier method claims. As Kahlman discloses an apparatus to implement the method, these claims are likewise rejected.

Regarding claims 30-35:

Kahlman inherently includes a computer-readable medium for recording a program. All other elements of these claims have already been discussed with regards to earlier rejections.

Regarding claims 36-39:

Kahlman discloses a method of detecting a code and an apparatus for detecting a code (for example, Fig. 10). All elements of these claims, however, are directed toward generating a sync code, and have already been discussed with regards to earlier rejections. No further elaboration is necessary.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 4, 8, 12, 22, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahlman in view of Kojima et al. (US 5,987,066).

Regarding claim 4:

Kahlman discloses a method as discussed above in the rejection of claim 2.

Kahlman discloses wherein the other patterns have a plurality of different signal patterns (discussed above) and wherein the distance between adjacent different sync signal patterns is 2 or more (apparent from table 3).

Kahlman does not disclose wherein the other patterns are 4T long.

Kojima discloses wherein the other patterns are 4T long. Kojima discloses that this reduces inter-symbol interference (column 3, lines 15-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Kahlman wherein the other patterns are 4T long, as taught by Kojima.

The motivation would have been to reduce the inter-symbol interference.

Regarding claims 8, 12, 22, and 28:

All elements positively recited have already been discussed with regards to earlier claims.

Conclusion

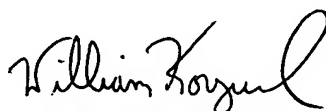
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Furukawa et al. (US 5,796,691) and Oki et al. (US 2002/0105885).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572) 272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 11/29/06


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